

U.S. Department of Agriculture, Agricultural Research Service

Systematic Mycology and Microbiology Laboratory - Nomenclature Fact Sheets

October 15, 2011

Fungi on *Asparagus* spp. in Africa

Classification of *Asparagus* has been controversial. Obermeyer (1983) transferred several species of wild asparagus to the new genus *Protasparagus*, including *Protasparagus falcatus*, *Protasparagus laricinus*, *Protasparagus plumosus*, *Protasparagus sarmentosus*, *Protasparagus striatus*, and *Protasparagus subulatus*, but this has not been universally accepted (GRIN 2006). *Asparagus* (and *Protasparagus*) are sometimes classified in the Asparagaceae and sometimes in the Liliaceae (GRIN 2006).

USDA, ARS, National Genetic Resources Program. Germplasm Resources Information Network - (GRIN) [Online Database]. <http://www.ars-grin.gov2/cgi-bin/npgs/html/queries.pl> (06 February 2006).

***Aecidium capense* Berk. & M.A. Curtis 1858 [1860] (Urediniomycetes, Uredinales)**

Notes: This fungus was described by Berkeley & Curtis from fruit of *Asparagus* or some allied plant. Doidge (1950) lists it as a doubtful species. According to Sydow (1924), the type specimen of *Aecidium capense* does contain a fungus that appears to be an *Aecidium*, but it cannot be described due to lack of material. He states definitively that this should not be accepted as a species, especially since the identity of the host plant is uncertain.

Distribution: Africa (South Africa, type).

Substrate: Fruit.

Host: *Asparagus* sp. or some allied plant (Berkeley & Curtis 1858).

Supporting Literature:

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5: 1-1094.

Sydow, P., and Sydow, H. 1924. *Monographia Uredinearum*. Vol. 4. *Uredineae imperfectae*. F. Borntraeger, Leipzig, 671 pages.

Verified By: Erica On Feb 01, 2006

This fungus was given a brief description by Berkeley & Curtis (1858), based on a collection from South Africa, on “fruit of *Asparagus* sp. or some allied plant”. It is apparently known only from the type collection. Doidge (1950) lists it as a doubtful species. According to Sydow (1924), the type specimen of *Aecidium capense* does contain a fungus that appears to be an *Aecidium*, but it cannot be described due to lack of material. He states definitively that this should not be accepted as a species, especially since the identity of the host plant is uncertain.

Aecidium schlechterianum Henn. 1898 also occurs in South Africa on *Asparagus* spp., but was collected from leaves rather than fruits. The other Uredinales reported on *Asparagus* spp. from South Africa are all *Puccinia* spp.: *Puccinia asparagi*, *Puccinia myrsiphylli*, *Puccinia ranulipes* (see below), and *Puccinia phyllocladiae* (see below) (Farr et al. 2006).

Additional references:

Berkeley, M. & Curtis. (1860). Fungi of the North Pacific Exped. Proceed. Amer. Acad. Sci. IV:

111-130.

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved February 6, 2006, from <http://nt.ars-grin.gov/fungaldatabases/>

***Diatrype caulina* Syd. 1939 (Ascomycetes, Xylariales)**

Distribution: Africa (South Africa, type).

Substrate: Dead stems.

Host: An undetermined *Asparagus* sp. (Asparagaceae, also sometimes placed in Liliaceae).

Supporting Literature:

Doidge, E.M. 1941. Some South African Valsaceae. *Bothalia* 4: 47-90.

Rappaz, F. 1987. [Taxonomy and nomenclature of the octosporous Diatrypaceae]. *Mycol. Helv.* 2: 285-648.

Verified By: Erica On Feb 03, 2006

This fungus was described by Sydow (1939) from dead stems of an undetermined *Asparagus* sp. in South Africa. It is known only from the type collection. Both Doidge (1941) and Rappaz (1987) accepted it as a distinct species, having reexamined and redescribed the type specimen.

Diatrype caulina is the only *Diatrype* species reported on Asparagaceae or Liliaceae. There are four other *Diatrype* spp. reported from Africa on hosts from other plant families: *Diatrype auristroma*, *Diatrype caminata*, *Diatrype leonotidis*, and *Diatrype macowaniana* (Doidge 1950).

Additional references:

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5 : 1-1094

Sydow, H. 1939. Beschreibungen neuer südafrikanischer Pilze VII. *Annal. Myc.* 37: 181-196.

***Hysterostomella tenella* Syd. & P. Syd. 1912 (Ascomycetes, Incertae sedis)**

≡*Hysterostomina tenella* (Syd. & P. Syd.) Theiss. & Syd. 1915

Distribution: Africa (South Africa),

Substrate: Leaves and stems.

Disease Note: Black scab (Doidge 1950), mole spot (Crous 2000).

Host: *Asparagus* spp. (considered by some authors to be *Protasparagus*, Asparagaceae, also sometimes placed in Liliaceae).

Supporting Literature:

Crous, P.W., Phillips, A.J.L., and Baxter, A.P. 2000. *Phytopathogenic Fungi from South Africa*. University of Stellenbosch, Department of Plant Pathology Press, 358 pages.

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5: 1-1094.

Verified By: Erica On Feb 03, 2006

This fungus was originally described by Sydow & Sydow (1912) from a type specimen on leaves of

wild asparagus, *Asparagus striatus* (= *Protasparagus striatus*). An additional collection was listed by Sydow & Sydow (1912) on branches and stems of an undetermined *Asparagus* species, which was later reported to be *Asparagus subulatus* (= *Protasparagus subulatus*) (Doidge 1950). It is known only from South Africa (Farr et al. 2006).

The species was transferred to the new genus *Hysterostomina* by Theissen & Sydow in 1915, as *Hysterostomina tenella* (Syd. & P. Syd.) Theiss. & Syd., but subsequent authors have continued to accept the name *Hysterostomella tenella* (e.g., Doidge 1950, Crous 2000).

Additional references:

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved February 6, 2006, from <http://nt.ars-grin.gov/fungaldatabases/>

Obermeyer, A. A. 1983. S. African J. Bot. 2: 243.

Microcyclus kentaniensis Doidge 1948 (Ascomycetes, Mycosphaerellales)

Distribution: Africa (South Africa, type).

Substrate: Stems.

Host: *Asparagus plumosus* (= *Protasparagus plumosus*, Asparagaceae, sometimes placed in Liliaceae).

Supporting Literature:

Doidge, E.M. 1948. South African Ascomycetes in the National Herbarium. Part IV. Nos. 196-254. Bothalia 4: 837-878.

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. Bothalia 5: 1-1094.

Verified By: Erica On Feb 03, 2006

This species was described by Doidge (1948) from stems of *Asparagus plumosus* (= *Protasparagus plumosus*). It is known only from the type specimen; it has not been reported on any other species of *Asparagus* (or *Protasparagus*) nor is it known to occur outside of South Africa. It is not mentioned in subsequently published fungus-host indices from South Africa (Doidge 1953, Crous 2000).

No other *Microcyclus* spp. have been reported on host plants in the Asparagaceae or Liliaceae. *Microcyclus kentaniensis* is the only *Microcyclus* species reported in South Africa. *Microcyclus* species reported from elsewhere in Africa are *Microcyclus angolensis*, *Microcyclus canthii*, *Microcyclus placodisci*, and *Microcyclus uvariae* (Farr et al. 2006).

Additional references:

Crous, P.W., Phillips, A.J.L., and Baxter, A.P. 2000. Phytopathogenic Fungi from South Africa. University of Stellenbosch, Department of Plant Pathology Press, 358 pages.

Doidge, E.M., Bottomley, A.M., van der Plank, J.E., and Pauer, G.D. 1953. A revised list of plant diseases in South Africa. U.S.D.A. Sci. Bull. 346 : 1-122

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved February 6, 2006, from <http://nt.ars-grin.gov/fungaldatabases/>

***Puccinia ranulipes* Doidge 1926 (Urediniomycetes, Uredinales)**

Distribution: Africa (South Africa, Zimbabwe).

Substrate: Cladodes.

Disease Note: Autoecious rust.

Host: *Asparagus laricinus* (= *Protasparagus laricinus*, Asparagaceae, sometimes placed in Liliaceae).

Supporting Literature:

Crous, P.W., Phillips, A.J.L., and Baxter, A.P. 2000. Phytopathogenic Fungi from South Africa. University of Stellenbosch, Department of Plant Pathology Press, 358 pages.

Doidge, E.M. 1927. A preliminary study of the South African rust fungi. Bothalia 2: 1-227.

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. Bothalia 5: 1-1094.

Verified By: Erica On Feb 03, 2006

This rust was first described by Doidge in 1926 from cladodes (leaf-like branches) of *Asparagus laricinus* (= *Protasparagus laricinus*). It has been reported from various locations in South Africa on that host (Doidge 1926), and from an undetermined *Asparagus* species in Zimbabwe (Whiteside 1966). Crous (2000) describes it as common in South Africa. It is autoecious; the uredinial state and the telial state occur on the same host.

The other *Puccinia* spp. occurring on *Asparagus* spp. in Africa are *Puccinia asparagi*, *Puccinia myrsiphylli*, and *Puccinia phyllocladiae* (see below). Only *Puccinia asparagi* has been reported on the cultivated asparagus, *Asparagus officinalis* (Farr et al. 2006).

Additional references:

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved February 6, 2006, from <http://nt.ars-grin.gov/fungaldatabases/>

Whiteside, J.O. 1966. A revised list of plant diseases in Rhodesia. Kirkia 5 : 87-196

***Puccinia phyllocladiae* Cooke 1882 (Urediniomycetes, Uredinales)**

Variant spelling *Puccinia phyllocladia* Cooke 1882 Note: Spelling used by Saccardo, Syll. Fung. VII: 733.

Notes: Thirumalachar (1947) added a description of what he believed to be the uredinial state of this species.

Distribution: Africa (South Africa, Kenya, Uganda), Asia (India, Pakistan, Sri Lanka).

Substrate: Cladodes (leaf-like branches).

Disease Note: Autoecious rust.

Host: *Asparagus falcatus* (= *Protasparagus falcatus*), *Asparagus sarmentosus* (= *Protasparagus sarmentosus*), and *Asparagus gracilis* (Asparagaceae, also placed in Liliaceae).

Supporting Literature:

Gjaerum, H.B. 1984. East African rusts (Uredinales), mainly from Uganda 3. On Amaryllidaceae, Commelinaceae, Iridaceae, Juncaceae, Liliaceae, Orchidaceae and Xyridaceae. Mycotaxon 20: 65-72.

Thirumalachar, M.J. 1947. Some noteworthy rusts - II. Mycologia 39: 231-248.

Verified By: Erica On Feb 03, 2006

This autoecious rust was first described by Cooke in 1882, on “stems and leaves” (=cladodes) of *Asparagus falcatus* (= *Protasparagus falcatus*), in South Africa. Cooke observed only the telial state. Thirumalachar (1947) was the first to observe and describe the uredinial state for a rust matching the description of *Puccinia phyllocladiae* on an undetermined *Asparagus* species.

Puccinia phyllocladiae has been reported from South Africa (Doidge 1950, Crous 2000), Kenya, Uganda, Sri Lanka (Gjaerum 1984), India, and Pakistan (Thirumalachar 1947).

The other *Puccinia* spp. occurring on *Asparagus* spp. in Africa are *Puccinia asparagi*, *Puccinia myrsiphylli*, and *Puccinia ranulipes* (see above). Only *Puccinia asparagi* has been reported on the cultivated asparagus, *Asparagus officinalis* (Farr et al. 2006).

Additional references:

Cooke 1882. Exotic Fungi. Grevillea 10:125.

Crous, P.W., Phillips, A.J.L., and Baxter, A.P. 2000. Phytopathogenic Fungi from South Africa. University of Stellenbosch, Department of Plant Pathology Press, 358 pages.

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. Bothalia 5 : 1-1094.

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA. Retrieved February 6, 2006, from <http://nt.ars-grin.gov/fungalatabases/>

Uredo kabanyoloensis Gjaerum 1984 (Urediniomycetes, Uredinales)

Distribution: Africa (Uganda, type).

Substrate: Not reported.

Disease Note: Rust.

Host: *Asparagus officinalis* (Cultivated asparagus, Asparagaceae, sometimes placed in Liliaceae).

Supporting Literature:

Gjaerum, H.B. 1984. East African rusts (Uredinales), mainly from Uganda 3. On Amaryllidaceae, Commelinaceae, Iridaceae, Juncaceae, Liliaceae, Orchidaceae and Xyridaceae. Mycotaxon 20: 65-72.

Verified By: Erica On Feb 06, 2006

This rust was first described by Gjaerum (1984) from cultivated asparagus plants, *Asparagus officinalis*, in Uganda. The infected plant parts were not specified. This is the only *Uredo* species reported from *Asparagus* spp. in Africa (Farr et al. 2006).

The SBML databases contain no other reports of this rust.

Written by Erica Cline, February 2006